

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|  |  |   |
|--|--|---|
| Applicant's or agent's file reference<br>047.00062 (RFT-118) | <b>FOR FURTHER ACTION</b><br>see Form PCT/ISA/220<br>as well as, where applicable, item 5 below. |   |
| International application No.<br>PCT/US04/33089              | International filing date ( <i>day/month/year</i> )<br>07 October 2004 (07.10.2004)              | (Earliest) Priority Date ( <i>day/month/year</i> )<br>13 November 2003 (13.11.2003) |
| Applicant<br>NDSU RESEARCH FOUNDATION                        |  |   |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).



With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.



none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/33089

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B05D 1/36; C08F 283/00

US CL : 427/202; 525/528

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : Please See Continuation Sheet

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category *    | Citation of document, with indication, where appropriate, of the relevant passages                      | Relevant to claim No.                      |
|---------------|---|--|
| X<br>---<br>Y | US 2,933,400 A (WURBS et al) 19 April 1960 (19.04.1960), entire document.                               | 1-8, 17, 33, 34<br>-----<br>9-16, 32       |
| X<br>---<br>Y | US 4,083,726 A (PARSON et al) 11 April 1978 (11.04.1978), entire document.                              | 1-17, 33, 34<br>-----<br>32                |
| X<br>---<br>Y | JP 56-102584 A (SHOWA NETSUGAKU KOGYO KK) 17 August 1981 (17.08.1981), English-language abstract.       | 1-8, 17, 33, 34<br>-----<br>9-16, 32       |
| X<br>---<br>Y | US 4,360,384 A (MCKAVENEY et al) 23 November 1982 (23.11.1982), entire document.                        | 1-8, 17, 30-31, 33, 34<br>-----<br>9-16 32 |
| Y             | US 6,632,294 B2 (MANSFIELD et al) 14 October 2003 (14.10.2003), column 3, line 45 to column 4, line 20. | 32   |



Further documents are listed in the continuation of Box C.



See patent family annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;"

document member of the same patent family

Date of the actual completion of the international search

13 April 2005 (13.04.2005)

Date of mailing of the international search report

12 MAY 2005

Name and mailing address of the ISA/US

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US04/33089

## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| A          | JP 53-045361 A (HITACHI LTD.) 24 April 1978 (24.04.1978), English-language abstract. | 1-49                  |

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/33089

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## Continuation of B. FIELDS SEARCHED Item 1:

106/1.05, 1.11, 14.05, 14.15, 14.16, 14.21, 14.41, 14.42, 14.44, 286.6; 427/180, 202, 299, 301, 302, 304, 327, 328, 402, 404, 405, 410, 419.7; 524/439, 590; 525/528; 528/76